

FIG. 1

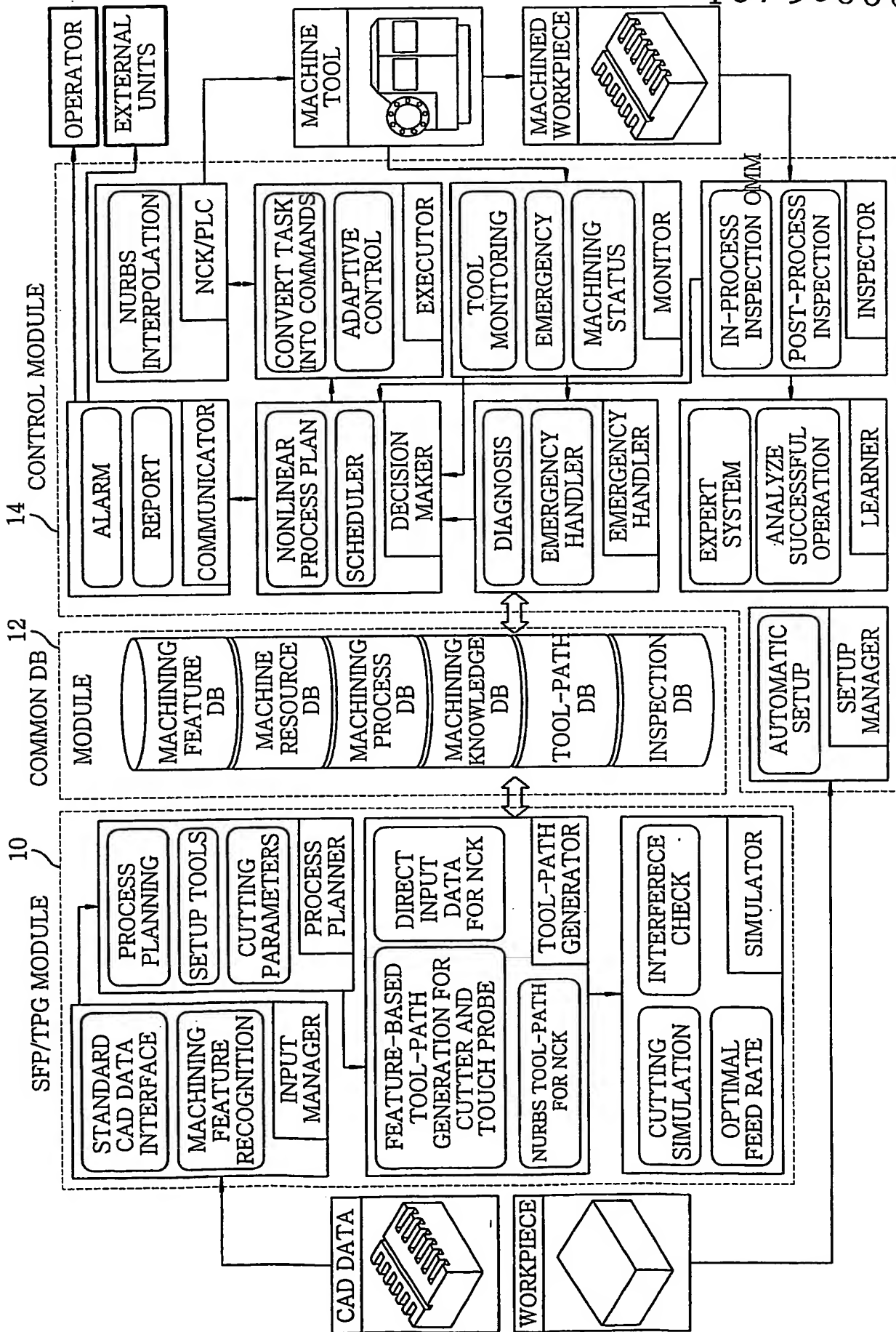


FIG. 2A

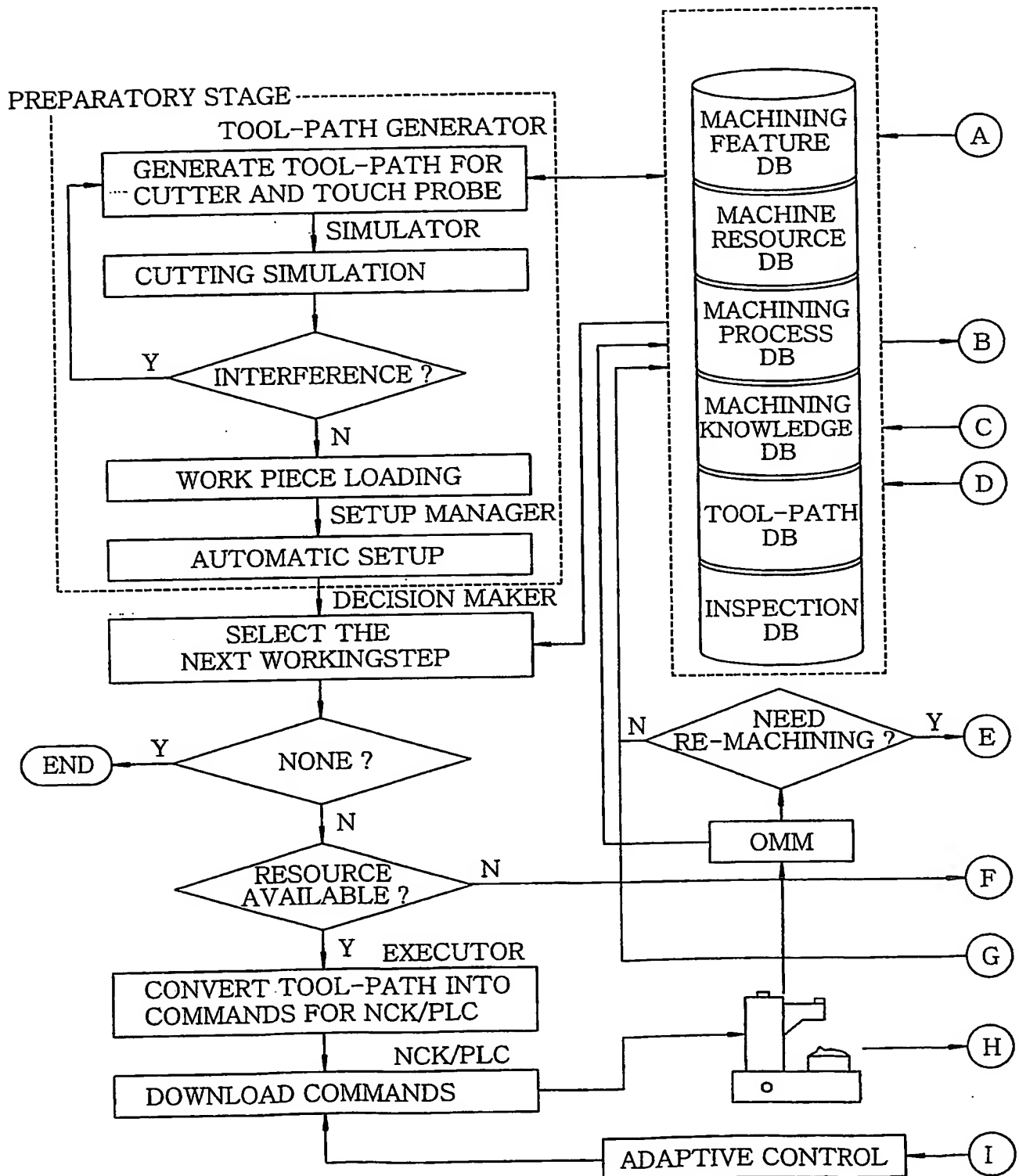


FIG. 2B

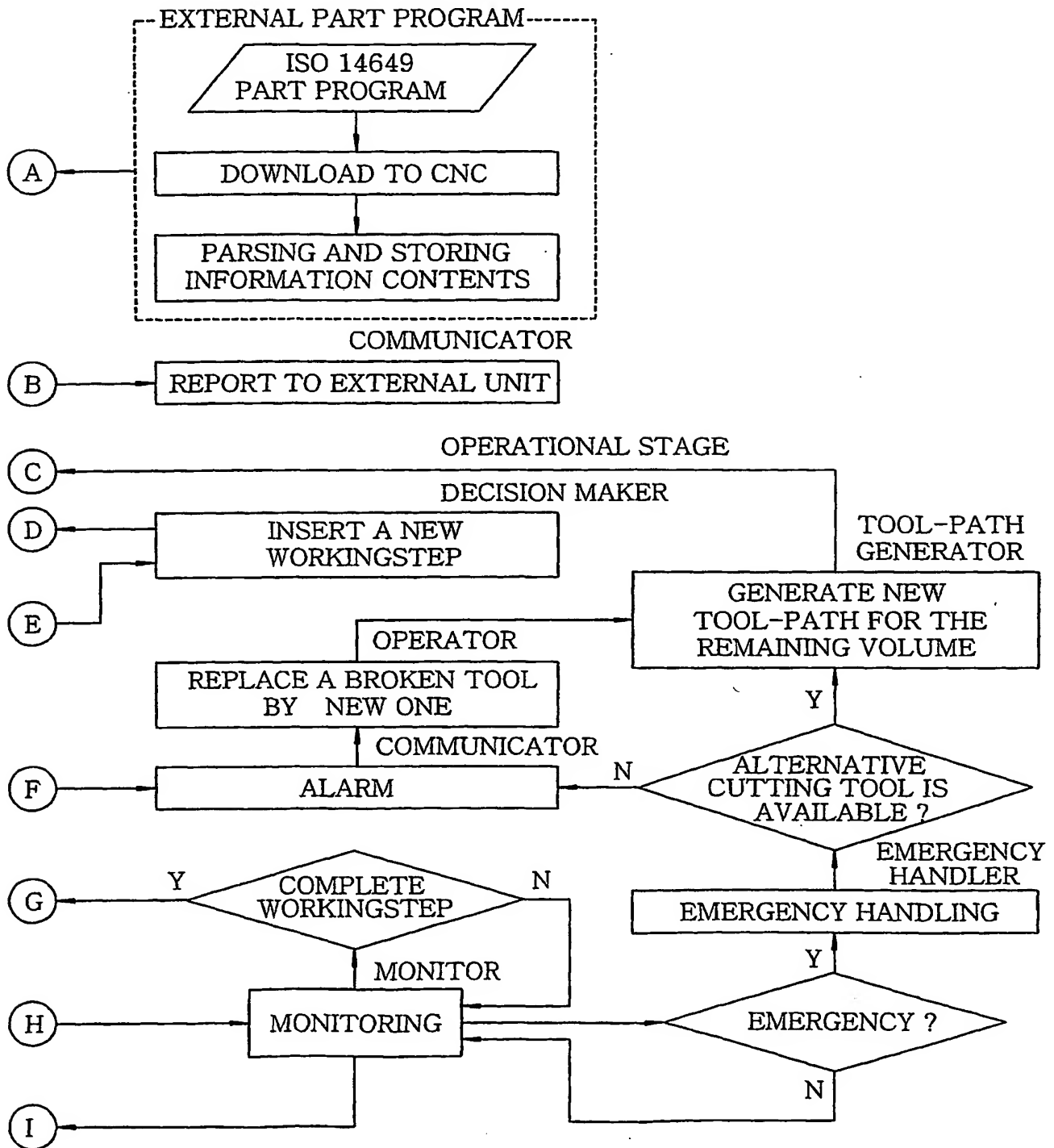


FIG. 3A

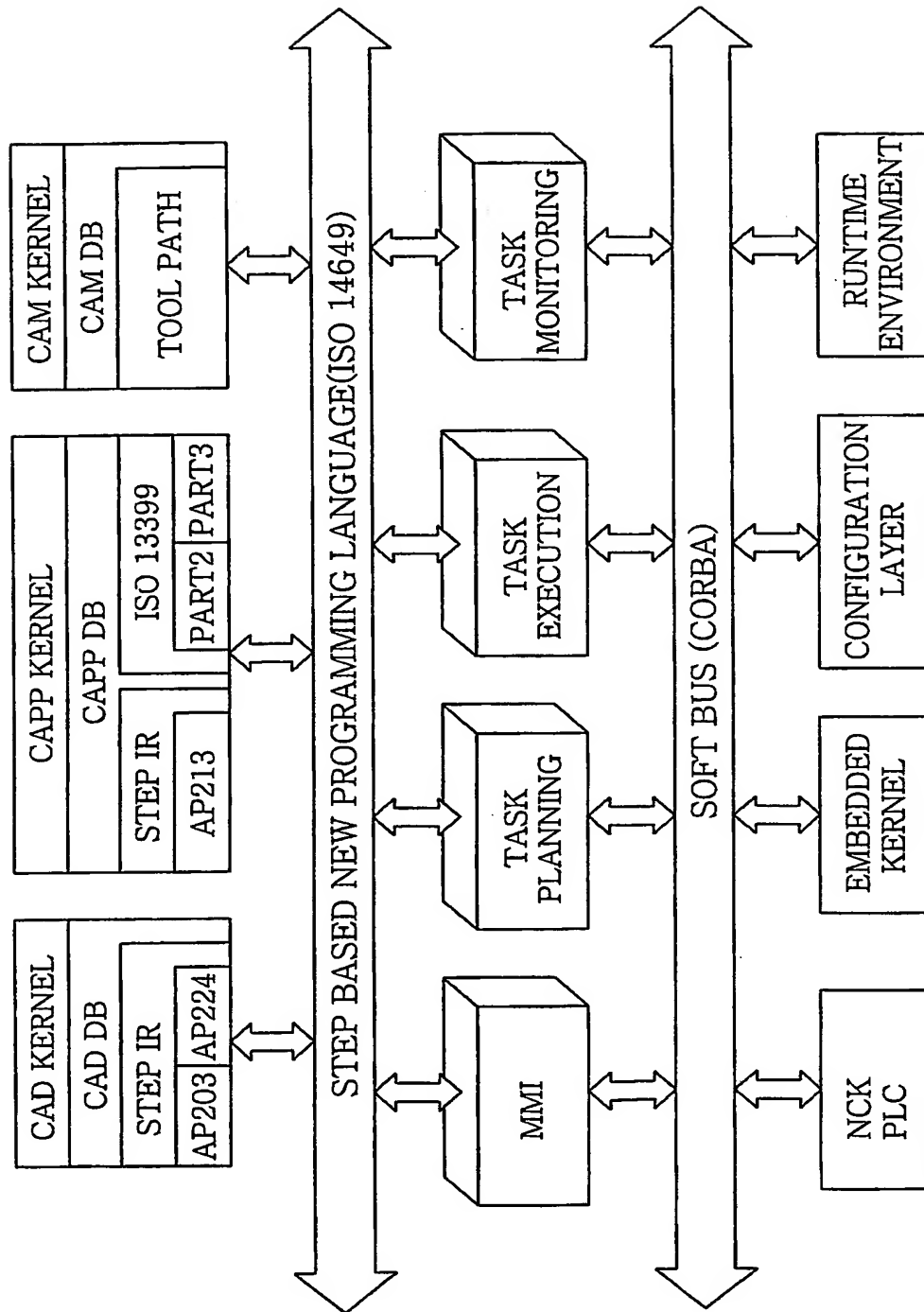
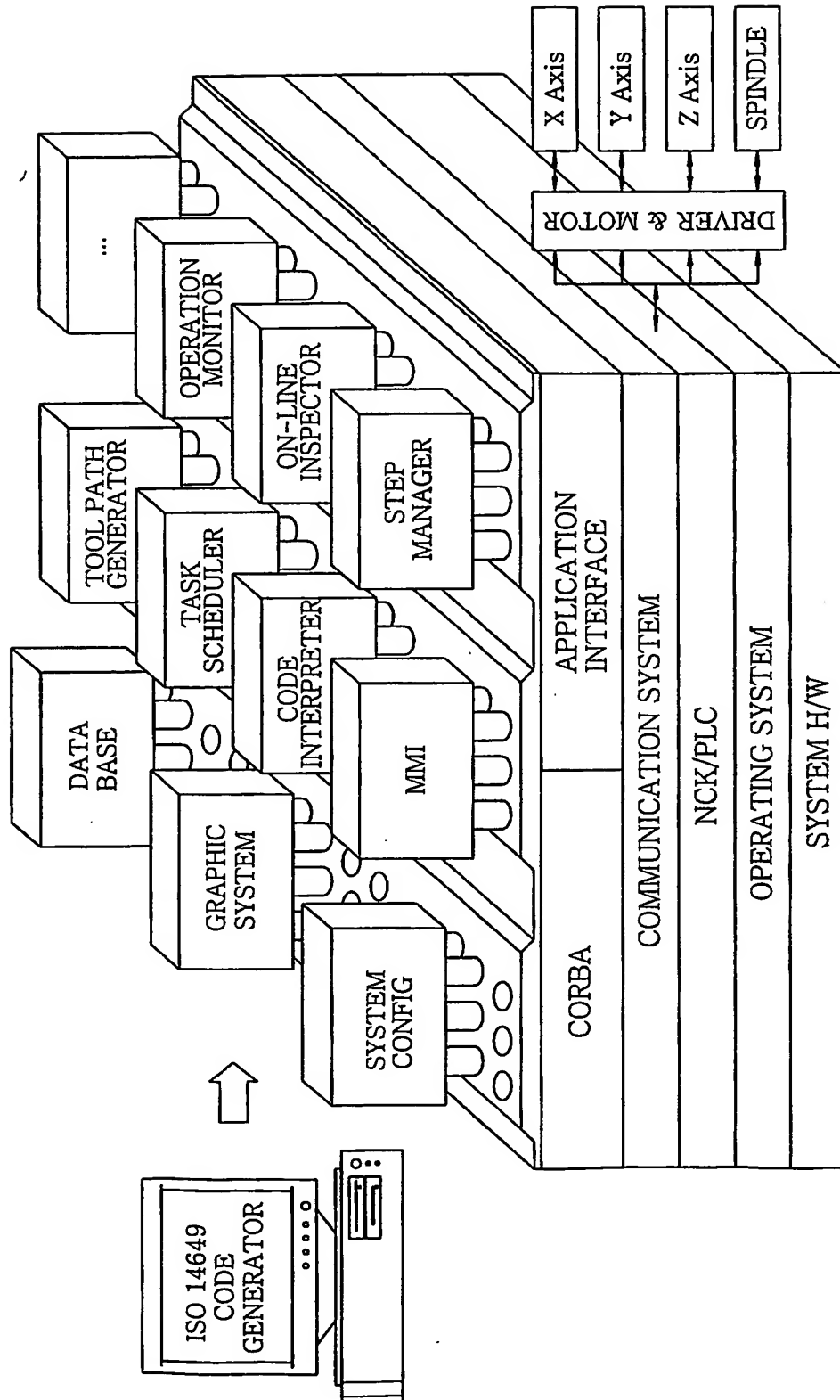


FIG. 3B



*FIG. 4A*

```
TYPE OMM_type=ENUMERATION OF
  (in_process_measurement,post_process_measurement);
END_TYPE ;

ENTITY OMM
  its_type :          OMM_type ;
  measurement_path :  tool_path ;
  measured_results :  user_defined_database ;
  desired_tolerance : toleranced_length_measure ;
  design_surface      advanced_brep_shape_representation ;
END_ENTITY ;
```

*FIG. 4B*

```
ENTITY monitoring
  ABSTRACT SUPERTYPE OF (monitoring)
END_TYPE ;

TYPE monitoring_sensor_type=ENUMERATION OF(
  dimensional_sensor,cutting_force_sensor,feed_force_sensor,
  spindle_motor_sensor,acoustic_emission_sensor) ;
END_ENTITY ;

TYPE monitoring_target_type=ENUMERATION OF(
  dimensional_check,tool_wear,tool_breakage) ;
END_ENTITY ;

ENTITY tool_monitoring
  SUBTYPE OF (monitoring) ;
  its_sensor :          monitoring_sensor_type ;
  its_target :          monitoring_target_type ;
END_ENTITY ;
```

*FIG. 4C*

```
ENTITY adaptive_control
  its_sensor :          monitoring_sensor_type ;
  max_torque :          OPTIONAL REAL ;
  max_cutting_force :   OPTIONAL REAL ;
  its_control_algorithm : OPTIONAL REAL adaptive_control_algorithm ;
END_ENTITY ;

FUNCTION adaptive_control_algorithm
  :
END_ENTITY ;
```